

WHAT IS CLAIMED IS

1. A liquid crystal display apparatus, comprising:  
a liquid crystal display unit;  
a plurality of data driving units which provide image data to said liquid crystal display unit; and  
a control unit which enables said plurality of data driving units to take in the image data simultaneously if the image data to be provided to said data driving units are identical.

2. The liquid crystal display apparatus as claimed in claim 1, further comprising an acquisition timing signal generating unit, which is provided on a substrate on which said plurality of data driving units are formed, and generates a timing signal that determines timing for acquiring said image data according to a signal supplied from said control unit, followed by supplying the timing signal to said data driving units selectively

3. The liquid crystal display apparatus as claimed in claim 1, further comprising an acquisition timing decision unit, which is provided in each of said data driving units, and determines timing at which said image data is acquired

according to a signal supplied from said control unit.

4. The liquid crystal display apparatus as claimed in claim 1, wherein said control unit includes a clock signal supply unit which suspends supply to said data driving units of a clock signal for deciding image data acquisition timing during a period in which said plurality of data driving units do not need to acquire said image data.

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5. The liquid crystal display apparatus as claimed in claim 1, wherein said control unit further includes a dividing unit which lowers a frequency of an external clock signal that determines image data acquisition timing, and transfers said same image data to said plurality of data driving units according to the divided clock signal generated by said dividing unit.

6. A liquid crystal display apparatus, comprising:

    a liquid crystal display unit which displays an image;

    a data driving unit which acquires image data according to a supplied clock signal, and supplies the image data to said liquid crystal display unit; and

a control unit which selects either one of a first timing at which the clock signal shifts from a first logic level to a second logic level and a second timing at which the clock signal shifts to a different logic level, and uses the selected one of the first timing and the second timing as timing at which said data driving unit acquires the image data.

7. A liquid crystal display apparatus, comprising:

a liquid crystal display unit which displays an image;

a data driving unit which acquires image data according to a supplied clock signal, and supplies the image data to said liquid crystal display unit; and

control unit which generates the clock signal as having a varying duty ratio and supplies the clock signal to said data driving unit.

8. The liquid crystal display apparatus as claimed in claim 7, wherein said control unit generates the clock signal having the varying duty ratio such that the clock signal synchronizes with said image data, and supplies the clock signal to said data driving unit.

9. A method of making a liquid crystal

display apparatus that displays an image on a liquid crystal panel including liquid crystal cells, comprising a step of determining a  $\gamma$  value serving as an index for a gradation-luminosity characteristic according to a thickness of the liquid crystal cells or a birefringence index of a liquid crystal layer included in the liquid crystal cells.

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10. A liquid crystal display apparatus that displays an image on a liquid crystal panel including liquid crystal cells, wherein a  $\gamma$  value which serves as an index of gradation-luminosity characteristic in said liquid crystal panel is set to above 1.9 and within a  $\pm 30\%$  range of 0.008 times  $\Delta n$  where  $\Delta n$  represents an anisotropy of a refractive index and  $d$  represents a thickness of said liquid crystal cells.

11. The liquid crystal display apparatus as claimed in claim 10, wherein said  $\gamma$  value is set between 2.15 and 3 while the product  $\Delta n d$  is within limits of  $350\text{nm} \pm 50\text{nm}$ .

12. The liquid crystal display apparatus as claimed in claim 10, wherein said  $\gamma$  value is set between 2.0 and 2.3 while the product  $\Delta n d$  is within limits of  $280\text{nm} \pm 50\text{nm}$ .

13. A liquid crystal display apparatus for displaying an image by controlling orientation of a plurality of liquid crystal molecules, comprising:

a first orientation domain wherein said molecules are oriented in a first direction upon application of a voltage; and

a second orientation domain having a different area size from said first orientation domain, wherein said liquid crystal molecules are oriented in an opposite direction of the first direction upon application of said voltage.

14. The liquid crystal display apparatus as claimed in claim 13, further comprising:

an electrode which has a slit or a bank-shaped dielectric structure formed thereon, and applies said voltage to said first orientation domain and said second orientation domain.

15. The liquid crystal display apparatus as claimed in claim 13, further comprising:

a pair of substrates between which a liquid crystal layer that includes said first orientation domain and said second orientation domain is provided, each of the substrates having a slit or a bank-shaped dielectric structure formed thereon, wherein distances between a first slit or

bank-shaped dielectric structure formed on one of said substrates and a second slit or bank-shaped dielectric structure formed on another one of said substrates are set to a first length and a second length alternately.

16. A liquid crystal display apparatus as claimed in claim 15, wherein:

the first slit or bank-shaped dielectric structure and the second slit or bank-shaped dielectric structure together form a pattern of two line segments connected at one end thereof at a predetermined angle for each of pixels for displaying the image when projected onto one plane through orthogonal projection.

17. The liquid crystal display apparatus as claimed in claim 15, wherein:

the first slit or bank-shaped dielectric structure and the second slit or bank-shaped dielectric structure form a pattern of two line segments on at least one of said substrates, said two line segments being connected at one end thereof at a predetermined angle for each of pixels that display the image.

18. A liquid crystal display apparatus for displaying an image by orienting liquid crystal

molecules in a liquid crystal layer that is situated between a pixel electrode substrate and an opposite substrate, comprising:

a first electrode which is formed over an entire surface of said opposite substrate;

a resin layer formed on said first electrode and having a first slit; and

a second electrode formed on the pixel electrode substrate to face said first electrode and having a second slit that faces said first slit.

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19. The liquid crystal display apparatus as claimed in claim 18, wherein a width of said first slit is narrower than a width of said second slit.

20. The liquid crystal display apparatus as claimed in claim 18, further comprising a bank-shaped dielectric structure formed on said resin layer.

21. A liquid crystal display apparatus for displaying an image by orienting liquid crystal molecules in a liquid crystal layer situated between a pixel electrode substrate and an opposite substrate, comprising:

a first bank-shaped dielectric structure which is formed on said opposite substrate,

a first electrode which is formed such as to cover said opposite substrate and the dielectric structure; and

a second electrode which is formed on said pixel electrode substrate, and has a slit that faces said dielectric structure.

22. The liquid crystal display apparatus as claimed in claim 21, further comprising a second dielectric structure that is formed on said first electrode and between first dielectric structures.

23. The liquid crystal display apparatus as claimed in claim 22, further comprising a third dielectric structure formed on said pixel electrode substrate and at a position facing said second dielectric structure wherein said second electrode is formed covering said third dielectric structure.

24. The liquid crystal display apparatus as claimed in claim 23, further comprising a dielectric layer that is formed between said second dielectric structure and said first electrode.

25. A liquid crystal display apparatus as

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claimed in claim 21, wherein said first dielectric structure comprises a plurality of color filter layers that are laminated.

26. A liquid crystal display apparatus for displaying an image by orienting liquid crystal molecules in a liquid crystal layer situated between a pixel electrode substrate and an opposite substrate, comprising:

a first electrode formed over an entire surface of said opposite substrate;

a slit formed on either one of said first electrode and a first dielectric structure formed on said opposite substrate;

a second electrode provided on said pixel electrode substrate to face said first electrode; and

a dielectric layer that covers either one of said first electrode near said first dielectric structure and said second electrode near said slit.

27. A liquid crystal display apparatus for displaying an image by orienting liquid crystal molecules in a liquid crystal layer situated between a pixel electrode substrate and an opposite substrate, comprising:

a first electrode formed over an entire surface of said opposite substrate;

a dielectric structure formed on said first electrode;

a second electrode formed on said pixel

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electrode substrate to face said first electrode and said dielectric structure; and

a dielectric layer formed on said second electrode to face said dielectric structure.

28. The liquid crystal display apparatus as claimed in claim 26, wherein a first threshold voltage for driving the liquid crystal molecules that face said dielectric layer is 1.2 or more times as great as a second threshold voltage for driving the liquid crystal molecules that do not face said dielectric layer, and a first area in which the threshold voltage for driving the liquid crystal molecules is equal to the first threshold voltage is less than half a second area in which the threshold voltage is equal to the second threshold voltage.

29. The liquid crystal display apparatus as claimed in claims 26 or 27, wherein a first threshold voltage for driving the liquid crystal molecules that face said dielectric layer is 1.2 or more times as great as a second threshold voltage for driving the liquid crystal molecules that do not face said dielectric layer, and a first area in which the threshold voltage for driving the liquid crystal molecules is equal to the first threshold voltage is less than half a second area in which the threshold voltage is equal to the second threshold voltage.

30. A clock signal generating circuit comprising:

a duty ratio control circuit which generates, based on a reference clock signal, a synchronizing clock signal whose duty ratio varies with time while keeping constant, relative to the reference clock signal, timing of either one of rising edges and falling edges of the synchronizing clock signal that is to be synchronized with a data train.

31. The circuit as claimed in claim 30, further comprising:

a delayed clock signal generating circuit which creates a plurality of delayed clock signals by giving different time delays to the reference clock signal, wherein

said duty ratio control circuit generates the synchronizing clock signal by combining said reference clock signal with one of the delayed clock signals.

32. A system which comprises:

a duty ratio control circuit which generates, based on a reference clock signal, a synchronizing clock signal whose duty ratio varies with time while keeping constant, relative to the reference clock signal, timing of either one of rising edges and falling edges of the synchronizing clock signal; and

circuitry which processes data in

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synchronization with the synchronizing clock signal.

33. The system as claimed in claim 32, further comprising:

a delayed clock signal generating circuit which creates a plurality of delayed clock signals by giving different time delays to the reference clock signal, wherein

said duty ratio control circuit generates the synchronizing clock signal by combining said reference clock signal with one of the delayed clock signals.

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34. A display apparatus which comprises: a duty ratio control circuit which generates, based on a reference clock signal, a synchronizing clock signal whose duty ratio varies with time while keeping constant, relative to the reference clock signal, timing of either one of rising edges and falling edges of the synchronizing clock signal;

a driver circuit which processes a data signal in synchronization with the synchronizing clock signal; and

a display unit that displays display signals produced by the driver circuit.

35. A display apparatus as claimed in

claim 34, further comprising:

a delayed clock signal generating circuit which creates a plurality of delayed clock signals by giving different time delays to the reference clock signal, wherein

said duty ratio control circuit generates the synchronizing clock signal by combining said reference clock signal with one of the delayed clock signals.